

MATHEMATICS OF COMPUTATION

CONTENTS

Vol. 68, No. 225

January 1999

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Gerhard Dziuk and John E. Hutchinson , The discrete Plateau Problem: Algorithm and numerics | 1 |
| Susanne C. Brenner , Convergence of nonconforming multigrid methods without full elliptic regularity | 25 |
| Stig Larsson and J.-M. Sanz-Serna , A shadowing result with applications to finite element approximation of reaction-diffusion equations | 55 |
| C. González and C. Palencia , Stability of Runge-Kutta methods for abstract time-dependent parabolic problems: The Hölder case | 73 |
| C. Schwab and W. L. Wendland , On the extraction technique in boundary integral equations | 91 |
| A. Bendali and Ph. Guillaume , Non-reflecting boundary conditions for waveguides | 123 |
| Xiaobing Feng , Absorbing boundary conditions for electromagnetic wave propagation | 145 |
| Wang Xinghua , Convergence of Newton's method and inverse function theorem in Banach space | 169 |
| Ricardo G. Durán , Error estimates for 3-d narrow finite elements | 187 |
| R. Schaback , Improved error bounds for scattered data interpolation by radial basis functions | 201 |
| Abdelkrim Ezzirani and Allal Guessab , A fast algorithm for Gaussian type quadrature formulae with mixed boundary conditions and some lumped mass spectral approximations | 217 |
| Pierre L'Ecuyer , Tables of linear congruential generators of different sizes and good lattice structure | 249 |
| Pierre L'Ecuyer , Tables of maximally equidistributed combined LFSR generators | 261 |
| Sandra Feisel, Joachim von zur Gathen, and M. Amin Shokrollahi , Normal bases via general Gauss periods | 271 |
| Jerzy Browkin and Herbert Gangl , Tame and wild kernels of quadratic imaginary number fields | 291 |
| Paul van Wamelen , Examples of genus two CM curves defined over the rationals | 307 |
| Patrick J. Callahan, Martin V. Hildebrand, and Jeffrey R. Weeks , A census of cusped hyperbolic 3-manifolds | 321 |
| Schehrasad Selmane , Non-primitive number fields of degree eight and of signature (2,3), (4,2) and (6,1) with small discriminant | 333 |
| Johannes Buchmann and Friedrich Eisenbrand , On factor refinement in number fields | 345 |
| Helaman R. P. Ferguson, David H. Bailey, and Steve Arno , Analysis of PSLQ, an integer relation finding algorithm | 351 |
| Tomás Oliveira e Silva , Maximum excursion and stopping time record- holders for the $3x + 1$ problem: Computational results | 371 |
| P. G. Walsh , On two classes of simultaneous Pell equations with no solutions | 385 |

| | |
|--------------------------------------------------------------------------------------------------------------|-----|
| Manuel Benito and Juan L. Varona , Advances in aliquot sequences ... | 389 |
| Todd Cochran and Robert E. Dressler , Gaps between integers with the same prime factors | 395 |
| Miodrag Živković , The number of primes $\sum_{i=1}^n (-1)^{n-i} i!$ is finite | 403 |
| Pierre Dusart , The k^{th} prime is greater than $k(\ln k + \ln \ln k - 1)$ for $k \geq 2$ | 411 |
| Harvey Dubner and Wilfrid Keller , New Fibonacci and Lucas primes | 417 |
| Richard P. Brent , Factorization of the tenth Fermat number | 429 |
| Reviews and Descriptions of Tables and Books | 453 |
| Lloyd N. Trefethen and David Bau, III 1, Arieh Iserles 2, E. D. de Goede 3, Frederico Paris and Jose Canas 4 | |
| Supplement to "New Fibonacci and Lucas primes" by Harvey Dubner and Wilfred Keller | S1 |
| Microfiche Supplement | |
| Patrick J. Callahan, Martin V. Hildebrand, and Jeffery R. Weeks, A census of cusped hyperbolic 3-manifolds | |

Vol. 68, No. 226

April 1999

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Marie-Noelle Le Roux and Paul-Emile Mainge , Numerical solution of a fast diffusion equation | 461 |
| John W. Barrett and James F. Blowey , Finite element approximation of the Cahn-Hilliard equation with concentration dependent mobility | 487 |
| Gerhard Dziuk and John E. Hutchinson , The discrete plateau problem: Convergence results | 519 |
| Yang Hongtao , On the convergence of boundary element methods for initial-Neumann problems for the heat equation | 547 |
| Susanne C. Brenner , Multigrid methods for the computation of singular solutions and stress intensity factors I: Corner singularities | 559 |
| P. Le Tallec and M. D. Tidriri , Convergence analysis of domain decomposition algorithms with full overlapping for the advection-diffusion problems | 585 |
| Ana Alonso and Alberto Valli , An optimal domain decomposition preconditioner for low-frequency time-harmonic Maxwell equations | 607 |
| Peter Oswald , On the robustness of the BPX-preconditioner with respect to jumps in the coefficients | 633 |
| Ibrahim Coulibaly and Christian Lécot , A quasi-randomized Runge-Kutta method | 651 |
| Werner M. Seiler , Numerical integration of constrained Hamiltonian systems using Dirac brackets | 661 |
| I. A. Blatov and V. V. Strygin , On best possible order of convergence estimates in the collocation method and Galerkin's method for singularly perturbed boundary value problems for systems of first-order ordinary differential equations | 683 |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Peter Eberhard and Christian Bischof , Automatic differentiation of numerical integration algorithms | 717 |
| Kurt Jetter, Joachim Stöckler, and Joseph D. Ward , Error estimates for scattered data interpolation on spheres | 733 |
| Karlheinz Gröchenig , Irregular sampling, Toeplitz matrices, and the approximation of entire functions of exponential type | 749 |
| Fred J. Hickernell and Hee Sun Hong , The asymptotic efficiency of randomized nets for quadrature | 767 |
| Stefano Serra , Superlinear PCG methods for symmetric Toeplitz systems | 793 |
| Hans-Georg Rück , On the discrete logarithm in the divisor class group of curves | 805 |
| Volker Müller, Andreas Stein, and Christoph Thiel , Computing discrete logarithms in real quadratic congruence function fields of large genus | 807 |
| Ernst-Ulrich Gekeler, Rita Leitl, and Bodo Wack , Zeta functions of a class of elliptic curves over a rational function field of characteristic two | 823 |
| Joseph H. Silverman , Computing rational points on rank 1 elliptic curves via L -series and canonical heights | 835 |
| Michael J. Jacobson, Jr. , Applying sieving to the computation of quadratic class groups | 859 |
| Peter Roelse , Factoring high-degree polynomials over F_2 with Niederreiter's algorithm on the IBM SP2 | 869 |
| Gwoboa Horng and Ming-Deh Huang , Solving polynomials by radicals with roots of unity in minimum depth | 881 |
| Reviews and Descriptions of Tables and Books | 887 |
| Walter Gautschi 5, G. W. Stewart 6, Anne Greenbaum 7 | |

Vol. 68, No. 227

July 1999

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Bosco García-Archilla, Julia Novo, and Edriss S. Titi , An approximate inertial manifolds approach to postprocessing the Galerkin method for the Navier-Stokes equations | 893 |
| Thomas Y. Hou, Xiao-Hui Wu, and Zhiqiang Cai , Convergence of a multiscale finite element method for elliptic problems with rapidly oscillating coefficients | 913 |
| Ruixia Li , On the coupling of BEM and FEM for exterior problems for the Helmholtz equation | 945 |
| A. Chalabi , Convergence of relaxation schemes for hyperbolic conservation laws with stiff source terms | 955 |
| Dongming Wei and Lew Lefton , A priori L^p error estimates for Galerkin approximations to porous medium and fast diffusion equations | 971 |
| So-Hsiang Chou and Panayot S. Vassilevski , A general mixed covolume framework for constructing conservative schemes for elliptic problems | 991 |

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| M. I. M. Copetti , Finite element approximation to a contact problem in linear thermoelasticity | 1013 |
| Philippe G. LeFloch and Jian-Guo Liu , Generalized monotone schemes, discrete paths of extrema, and discrete entropy conditions | 1025 |
| Amin Boumenir , Eigenvalues of periodic Sturm-Liouville problems by the Shannon-Whittaker sampling theorem | 1057 |
| Guo Ben-yu , Error estimation of Hermite spectral method for nonlinear partial differential equations | 1067 |
| Hermann Brunner, Arvet Pedas, and Gennadi Vainikko , The piecewise polynomial collocation method for nonlinear weakly singular Volterra equations | 1079 |
| Klaus Böhmer, Willy Govaerts, and Vladimír Janovský , Numerical detection of symmetry breaking bifurcation points with nonlinear degeneracies | 1097 |
| Richard Baltensperger, Jean-Paul Berrut, and Benjamin Noël , Exponential convergence of a linear rational interpolant between transformed Chebyshev points | 1109 |
| Robert S. Anderssen and Markus Hegland , For numerical differentiation, dimensionality can be a blessing! | 1121 |
| Abraham Ziv , Sharp ULP rounding error bound for the hypotenuse function | 1143 |
| Christopher Pinner , Double roots of $[-1, 1]$ power series and related matters | 1149 |
| Vincenzo Acciario and Jürgen Klüners , Computing automorphisms of abelian number fields | 1179 |
| J. E. Cremona and P. Serf , Computing the rank of elliptic curves over real quadratic number fields of class number 1 | 1187 |
| Shigeki Akiyama and Yoshio Tanigawa , Calculation of values of L -functions associated to elliptic curves | 1201 |
| Sachar Paulus and Hans-Georg Rück , Real and imaginary quadratic representations of hyperelliptic function fields | 1233 |
| Daniel C. Shanks, Patrick J. Sime, and Lawrence C. Washington , Zeros of 2-adic L -functions and congruences for class numbers and fundamental units | 1243 |
| Roelof J. Stroeker and Benjamin M. M. de Weger , Elliptic binomial diophantine equations | 1257 |
| Hiroshi Sekigawa and Kenji Koyama , Nonexistence conditions of a solution for the congruence $x_1^k + \dots + x_s^k \equiv N \pmod{p^n}$ | 1283 |
| L. Hajdu and Á. Pintér , Square product of three integers in short intervals | 1299 |
| F. Bertault, O. Ramaré, and P. Zimmermann , On sums of seven cubes | 1303 |
| Thomas R. Nicely , New maximal prime gaps and first occurrences | 1311 |
| Karl-Heinz Indlekofer and Antal Jári , Largest known twin primes and Sophie Germain primes | 1317 |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| R. Hiptmair , Canonical construction of finite elements | 1325 |
| Barbara I. Wohlmuth and Ronald H. W. Hoppe , A comparison of a posteriori error estimators for mixed finite element discretizations by Raviart-Thomas elements | 1347 |
| Philippe Destuynder and Brigitte Métivet , Explicit error bounds in a conforming finite element method | 1379 |
| Georg Dolzmann , Optimal convergence for the finite element method in Campanato spaces | 1397 |
| Jinchao Xu and Ludmil Zikatanov , A monotone finite element scheme for convection-diffusion equations | 1429 |
| R. G. Durán, L. Hervella-Nieto, E. Liberman, R. Rodríguez, J. Solomin , Approximation of the vibration modes of a plate by Reissner-Mindlin equations | 1447 |
| Russel E. Caflisch, Thomas Y. Hou, and John Lowengrub , Almost optimal convergence of the point vortex method for vortex sheets using numerical filtering | 1465 |
| F. Ben Belgacem and C. Bernardi , Spectral element discretization of the Maxwell equations | 1497 |
| Holger Wendland , Meshless Galerkin methods using radial basis functions | 1521 |
| Wolfgang Dahmen and Reinhold Schneider , Composite wavelet bases for operator equations | 1533 |
| Zhongying Chen, Charles A. Micchelli, and Yuesheng Xu , A construction of interpolating wavelets on invariant sets | 1569 |
| Chun-Hua Guo and Peter Lancaster , Iterative solution of two matrix equations | 1589 |
| Benedetta Morini , Convergence behaviour of inexact Newton meth- ods | 1605 |
| H. G. Khajah , Tau method approximation of a generalized Epstein-Hubbell elliptic-type integral | 1615 |
| Djurdje Cvijović and Jacek Klinowski , Values of the Legendre chi and Hurwitz zeta functions at rational arguments | 1623 |
| Dimitri Leemans , An atlas of regular thin geometries for small groups ... | 1631 |
| Ki-ichiro Hashimoto and Hiroshi Tsunogai , On the Sato-Tate conjecture for QM-curves of genus two | 1649 |
| Paul van Wamelen , Proving that a genus 2 curve has complex multiplication | 1663 |
| Masanari Kida , Reduction of elliptic curves over certain real quadratic number fields | 1679 |
| N. P. Smart , Determining the small solutions to S -unit equations | 1687 |
| H. Cohen, F. Diaz y Diaz, and M. Olivier , Tables of octic fields with a quartic subfield | 1701 |
| M. A. Shokrollahi , Relative class number of imaginary Abelian fields of prime conductor below 10000 | 1717 |

| | |
|----------------------------------------------------------------------------------------------------------------------|------|
| James McKee , Speeding Fermat's factoring method | 1729 |
| Tony Forbes , Prime clusters and Cunningham chains | 1739 |
| Douglas E. Iannucci , The second largest prime divisor of an odd perfect number exceeds ten thousand | 1749 |

